RESEARCH AND DEVELOPMENT, NEUCHATEL - QUARTERLY REPORT

DIVISION : RESEARCH

SUBJECT TITLE : GALAXY

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OBJECTIVE

Study the impact of processing practices on microbiological, chemical and physical properties of tobacco and develop viable solutions, make recommendations and establish specifications in order to avoid tobacco quality loss during processing and storage.

STATUS

The establishment of Burley temperature profiles along P&S treatment in the four european primaries has been completed.

RESULTS

Tobacco temperature profiles were determined in the middle and on both sides of P&S dryers with DATATRACE needle sensors as described previously [1]. Five dryers were investigated at FTR, Munich, Berlin and two at BOZ. Average results of ten determinations per position are presented in Figs. 1 to 4.
Few temperature variations are observed in the apron-band width in Berlin and BOZ while in Munich and FTR a 10°C difference is observed in the cooling zone.
The comparison between the four treatments (both BOZ dryers operating in the same way), shows that tobacco temperature and time spent by the tobacco in the dryers are different.
Tobacco temperature is a function of the air settings (flow, temperature, rH) and tobacco flow (carpet depth) while time is a function of dryer length and apron-band speed.

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Drying

Tobacco temperature at the end of the drying zone is between 59 and 62°C for all P&S dryers. Similarities are observed between Berlin and BOZ and FTR and Munich. In the first case, tobacco temperature increases rapidly and then is stabilized during the last 2/3 of the drying zone. In the second situation, temperature increases continuously until the beginning of cooling.

Cooling

The purpose of the cooling zone is to reduce tobacco temperature before reordering. A decrease of 10°C is observed from the end of the drying zone in Berlin and BOZ. Cooling is more pronounced in Munich and Neuchatel with a 15-20°C temperature drop.

Reordering

For Berlin and Munich, tobacco temperature during reordering is equivalent to that during drying. In BOZ, temperature increases up to 72°C during the first reordering section and then decreases to 60°C at the exit. At FTR, the reordering seems to be interrupted after tobacco temperature increases from 45°C during cooling to 65°C at the dryer exit.

Fig. 5 summarizes the different P&S treatments with the same time-scale presentation. Residence time in the dryer varies from 5.5 minutes at FTR and 17.5 minutes in Berlin.
The pie-charts show the respective proportions of the three P&S zones reported to the total residence time. In Berlin, BOZ and Munich, drying and reordering times are equal with the cooling zone representing approximately 10%. In FTR, drying contributes for more than 60%, cooling for 15% and reordering for 22% only.

PLANS

- Measure the air settings (temperature and relative humidity) along each P&S treatment.
- Profile tobacco temperature in cut tobacco dryers in Berlin and Munich.

REFERENCES

[1] Berney-J. and Hofer-M., Quarterly Report, Project GALAXY, October-December 1990.

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Figure 1 : PM-BERLIN BURLEY TREATMENT

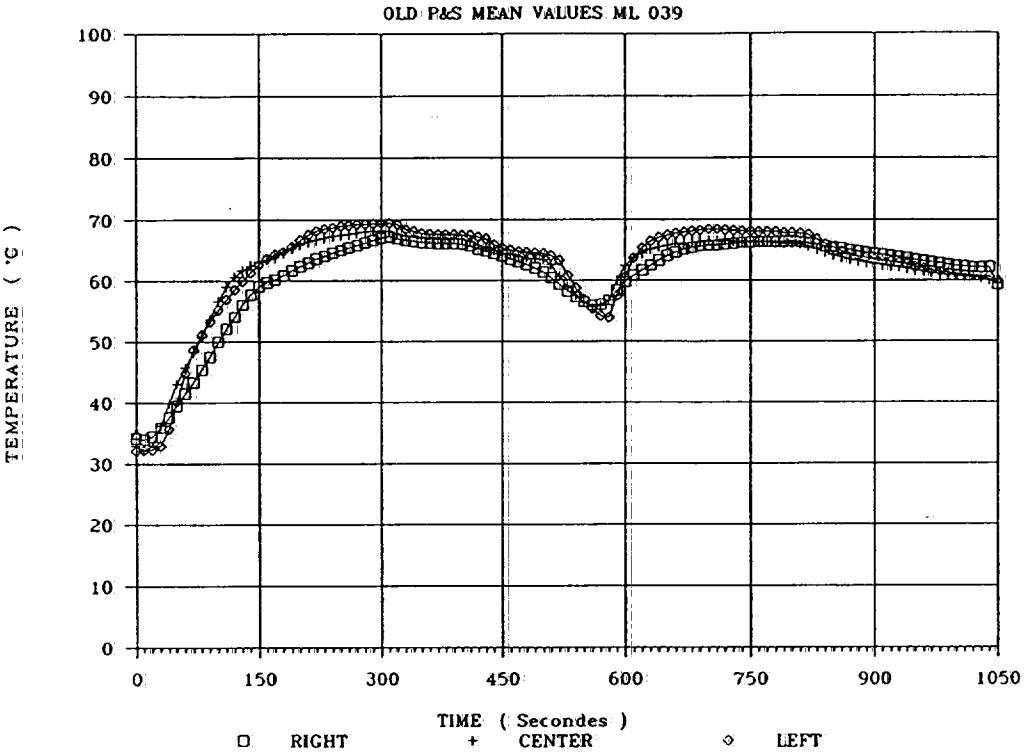

Figure 2 : PM-BOZ BURLEY TREATMENT

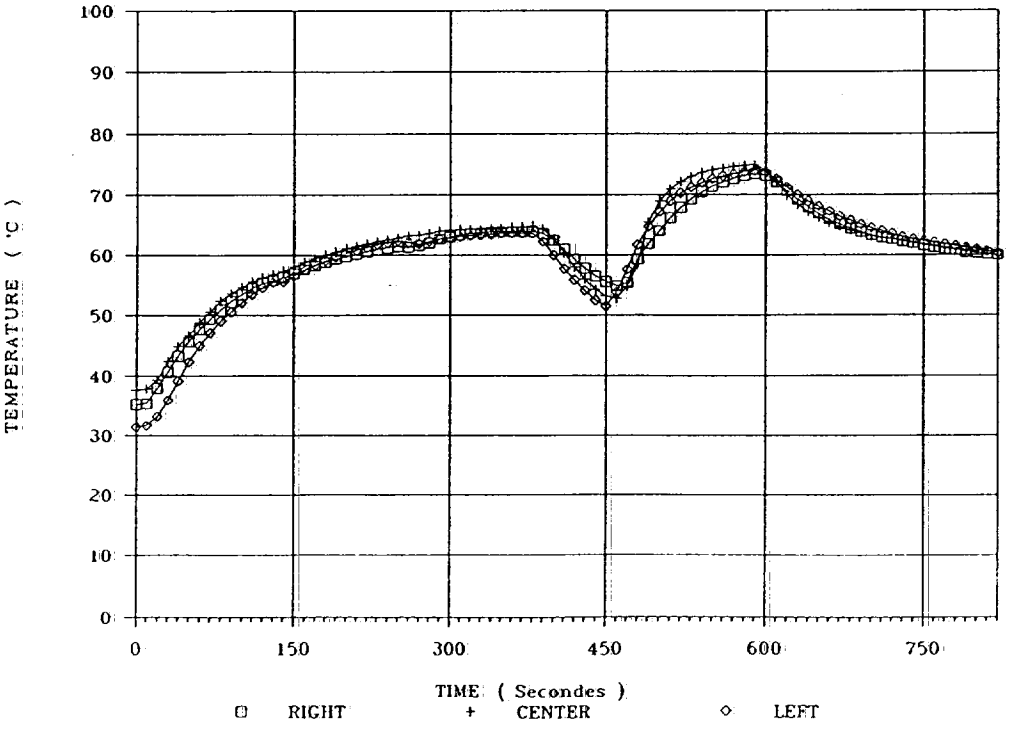

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Figure 3 : PM-MUNICH BURLEY TREATMENT

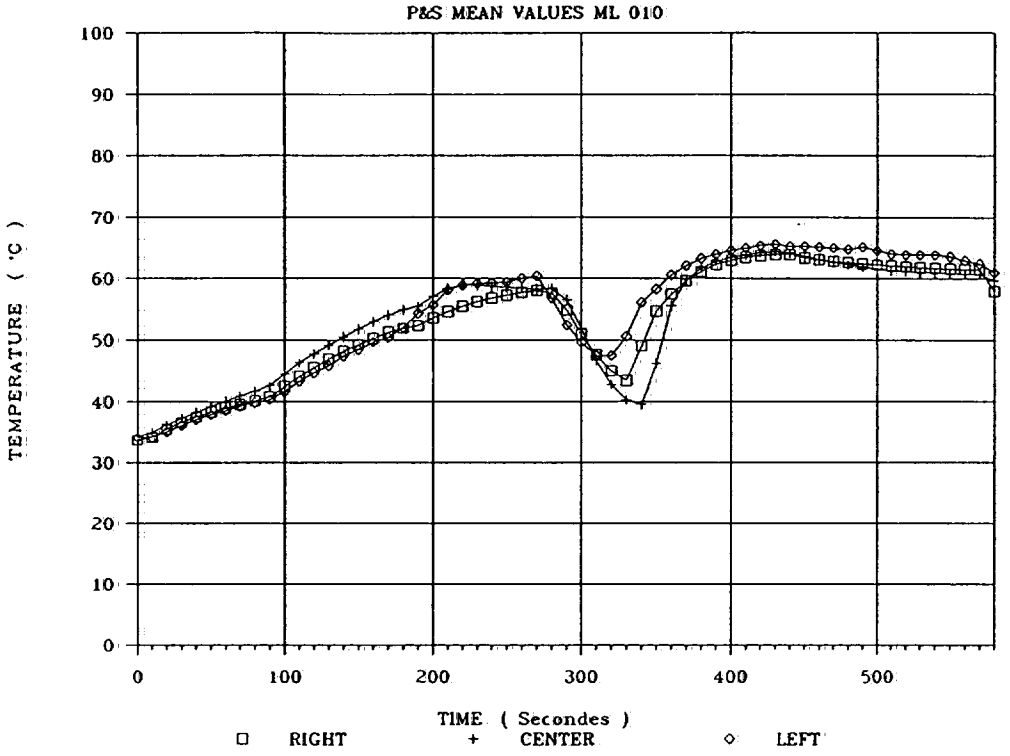

Figure 4 : PM-NEUCHATEL BURLEY TREATMENT

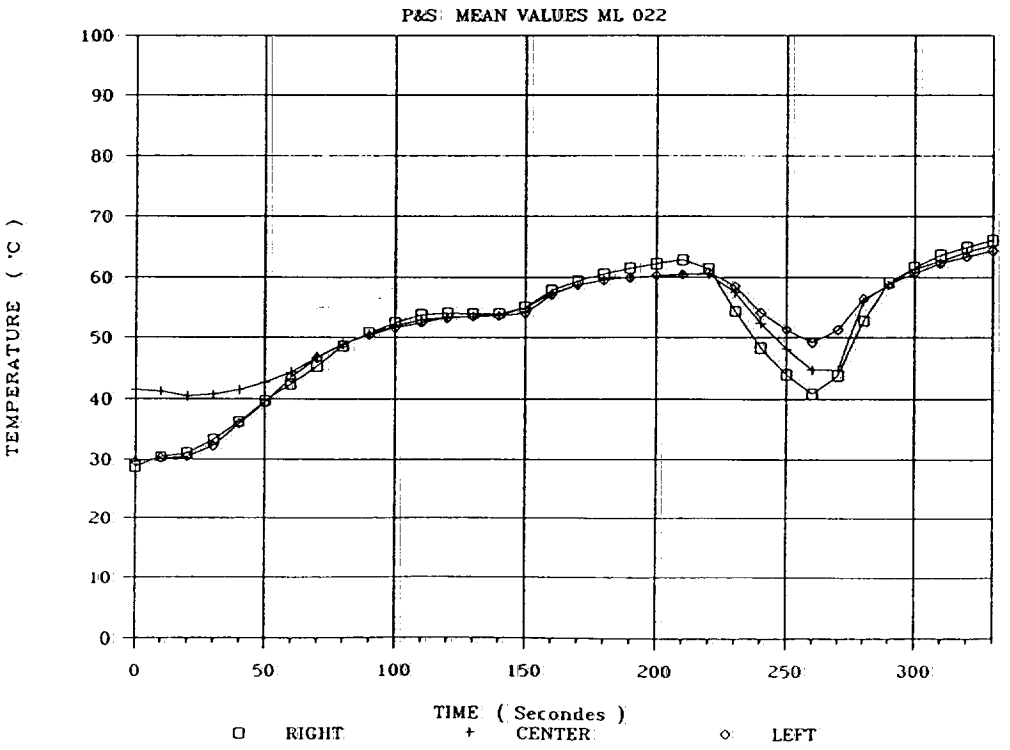

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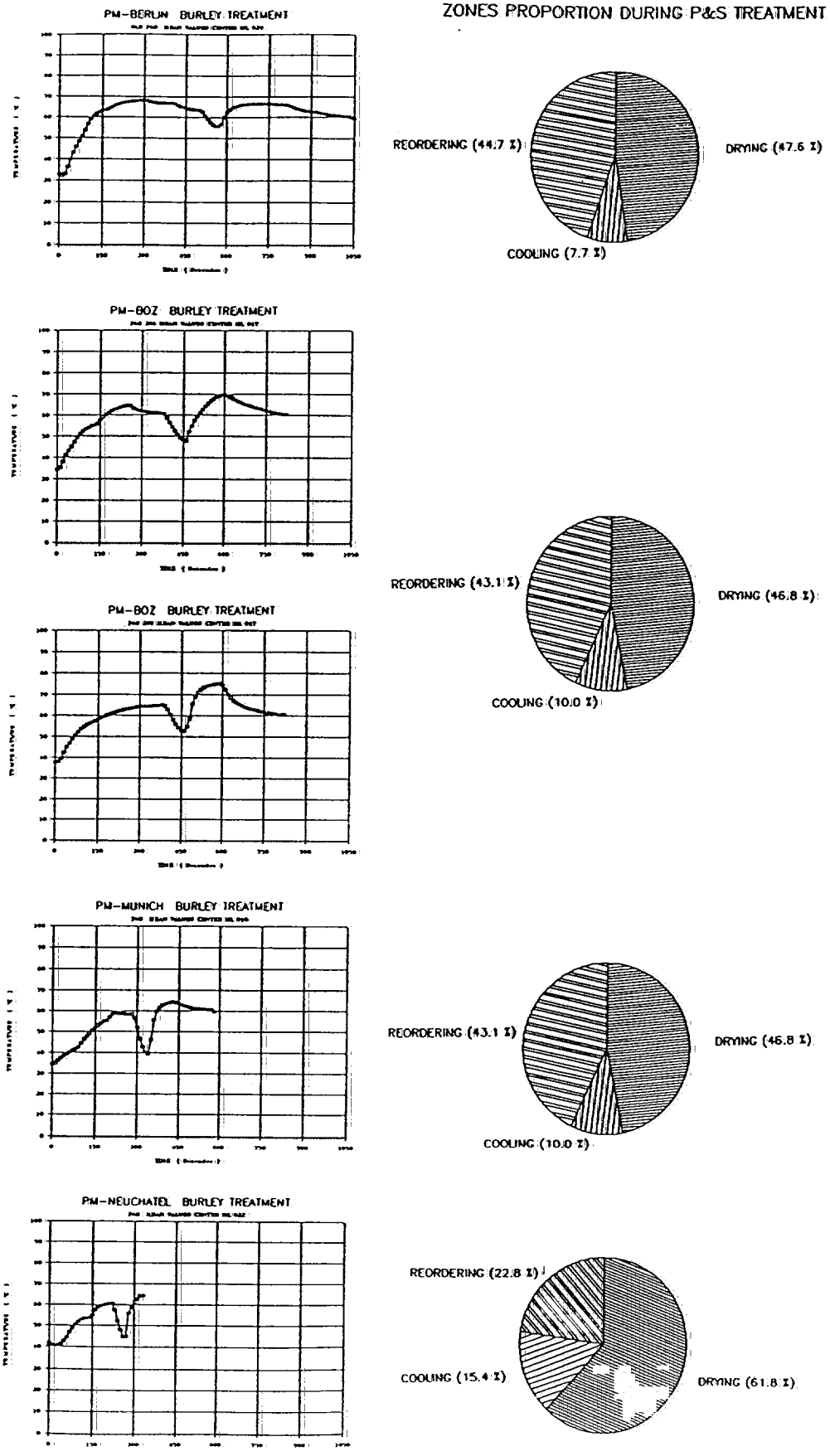
Figure 5 :



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